DALHOUSIE MATHEMATICS COLLOQUIUM

Thursday March 21 2019, 3:30 pm, Chase 319

Speaker: Suresh Eswarathasan

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High-energy behavior of eigenfunctions on Riemannian surfaces

Eigenfunctions arise in physics as modes of periodic vibration of drums and membranes. They can also represent stationary energy states of a free quantum particle on a Riemannian surface. One manner of studying these special functions is by understanding their various behaviors when the corresponding eigenvalues (considered as a type of frequency) become large.

The first part of my lecture will focus on giving background on eigenfunctions in the Riemannian setting with an emphasis on explicit formulae. The second will provide some recent results concerning the topology/geometry of zero sets for "generic" eigenfunctions on the two-sphere. The third and final part will surround their size which can be quantified by estimating L^p norms.